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# Plasma N-terminal pro-brain natriuretic peptide levels identifying left ventricular diastolic dysfunction in patients with preserved ejection fraction.


## Abstract

**BACKGROUND:**

Diagnosis of left ventricular (LV) diastolic dysfunction by blood testing is expedient in the clinical setting.

**METHODS AND RESULTS:**

In 98 patients with LV ejection fraction ≥50% who underwent cardiac catheterization for evaluation of coronary artery disease, LV pressure (LVP) was measured using a catheter-tipped micromanometer. A time constant, τ, of LV relaxation was computed from LVP decay; the inertia force of late systolic aortic flow, a surrogate index of LV elastic recoil, was also computed from the LVP-dP/dt relation (phase loop). Patients were classified into 2 groups: those with impaired LV relaxation (τ ≥48 ms) and those with preserved LV relaxation (τ <48 ms). Patients were also classified into another 2 groups: those with inertia force (≥0.5 mmHg) and those without (<0.5 mmHg). Plasma N-terminal pro-brain natriuretic peptide (NT-proBNP) ≥56.5 pg/ml had a sensitivity of 100%, specificity of 52.5%, and negative predictive value of 100% for identifying impaired LV relaxation. NT-proBNP ≥244.5 pg/ml had a sensitivity of 62.5% and specificity of 93.9% for detecting lack of inertia force.

**CONCLUSIONS:**

NT-proBNP level <56.5 pg/ml could be used as a value to sensitively identify patients with preserved LV systolic and diastolic function among those with coronary artery disease. NT-proBNP level ≥244.5 pg/ml is able to specifically detect a lack of inertia force and has potential for specifically diagnosing LV isolated diastolic dysfunction.